National Institute of Environmental Health Sciences

Is the association between temperature and mortality modified by age, gender and socio-economic status?

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Abstract:

Background: A number of studies have examined the relationship between high ambient temperature and mortality. Recently, concern has arisen about whether this relationship is modified by socio-demographic factors. However, data for this type of study is relatively scarce in subtropical/tropical regions where people are well accustomed to warm temperatures. Objective: To investigate whether the relationship between daily mean temperature and daily all-cause mortality is modified by age, gender and socio-economic status (SES) in Brisbane, Australia. Methods: We obtained daily mean temperature and all-cause mortality data for Brisbane, Australia during 1996–2004. A generalised additive model was fitted to assess the percentage increase in all deaths with every one degree increment above the threshold temperature. Different age, gender and SES groups were included in the model as categorical variables and their modification effects were estimated separately. Results: A total of 53,316 non-external deaths were included during the study period. There was a clear increasing trend in the harmful effect of high temperature on mortality with age. The effect estimate among women was more than 20 times that among men. We did not find an SES effect on the percent increase associated with temperature. Conclusions: The effects of high temperature on all deaths were modified by age and gender but not by SES in Brisbane, Australia.

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Meteorological Factors, Temperature

Air Pollution: Ozone, Particulate Matter, Other Air Pollution

Air Pollution (other): NO2

Temperature: Extreme Cold, Extreme Heat

Geographic Feature:

resource focuses on specific type of geography

Urban, Other Geographical Feature

Other Geographical Feature : sub-tropical

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Australasia

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Morbidity/Mortality

Population of Concern: A focus of content

Population of Concern: ☑

populations at particular risk or vulnerability to climate change impacts

Elderly, Low Socioeconomic Status

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified